

REMARKS

The Application has been carefully reviewed in light of the Office Action dated February 24, 2004 (Paper No. 18). Claims 1, 19 to 24 and 26 to 31 are in the application, of which Claim 1 is the only independent claim. Claim 25 is being canceled without prejudice or disclaimer of the subject matter. Claims 1, 19 to 24 and 26 to 30 are being amended, and Claim 31 is being added. Reconsideration and further examination are respectfully requested.

In response to the comments at page 2 of the Office Action, wherein it is stated that the lack of traversal of an official notice used in rejecting Claim 10 constitutes an admission of fact, it is submitted that such a position is improper, since Claim 10 was cancelled rendering the grounds for its rejection moot, traversal of the rejection was also seen to be unnecessary.

The Office Action objected to the drawings as allegedly failing to show every feature of the invention specified in the claims. Without conceding the correctness of the objection, Claim 1 has been amended, and as such the specific objection to the claim is believed to be rendered moot.

Claim 29 has been rejected under 35 U.S.C. § 112, second paragraph, and under 37 CFR § 1.75(c). In response, amendments have been made to Claim 29 which are believed to obviate the rejections.

In view of the above, reconsideration and withdrawal of the objection to the drawings and Claims 1 and 25, together with the 35 U.S.C. § 112 and 37 CFR § 1.75(c) rejections of Claim 29, are respectfully requested.

By the Office Action, Claims 1 and 19 to 30 are rejected under 35 U.S.C. § 103(a) over JP 11-151,233 (Nonaka), U.S. Patent No. 5,060,069 (Aoki) and U.S. Patent No. 4,675,747 (Hanma), and Claims 1, 19 to 25 and 30 are rejected under 35 U.S.C. § 103(a) over Nonaka and U.S. Patent No. 6,567,125 (Shimizu).

The invention concerns an image sensing apparatus comprising a sensor unit having a plurality of pixels for converting radiation to an electrical signal. A first power source adapted to supply electrical power to the sensor unit. A signal line is adapted to read out the electrical signal. A preamplifier is adapted to amplify the electrical signal read out by the signal line. A second power source is adapted to supply electrical power to the preamplifier. A control circuit controls the second power source to start a supply of electrical power to the preamplifier, after the first power source starts to supply electrical power. The first power source supplies electrical power to the sensor unit through at least the signal line.

By virtue of this arrangement, power is able to be supplied to the sensor unit independent of power being supplied to the preamplifier, and vice versa, thereby limiting power consumption and heat generation. In addition, by virtue of this arrangement, power is able to be supplied to the sensor unit through the signal line thereby simplifying the sensor arrangement.

Turning to the specific language of the claims, Claim 1 defines an image sensing apparatus comprising a sensor unit, a first power source, a signal line, a preamplifier, a second power source and a control circuit. The sensor unit has a plurality of pixels for converting radiation to an electrical signal. The first power source is adapted

to supply electrical power to the sensor unit. The signal line is adapted to read out the electrical signal. The preamplifier is adapted to amplify the electrical signal read out by the signal, and the second power source is adapted to supply electrical power to the preamplifier. The control circuit is adapted to control the second power source to start a supply of electrical power to the preamplifier, after the first power source starts to supply electrical power. The first power source supplies electrical power to the sensor unit through at least the signal line.

Thus, among its features, the present invention has the features of: 1) a control circuit controlling a second power source to start supply of electrical power to the preamplifier after the first power source starts to supply electrical power to the sensor unit, and 2) the first power source supplies power to the sensor unit through at least the signal line.

The applied art, namely Nonaka, Aoki, Hanma and Shimizu, is not seen to teach or to suggest these features.

Initially, with respect to the official notice taken in rejecting the claims based on Nonaka and Shimizu, found at page 10 of the Office Action, to the extent that the Examiner is relying on a teaching other than that shown by Nonaka and Shimizu, Applicants respectfully request the Examiner to provide evidence of such teaching including a suggestion or motivation to modify Nonaka to use an output amplifier to amplify the output of an image sensor to generate more robust signals.

Nonaka is to describe an arrangement in which a sensor transmits an exposure permission signal after completion of a sensor refresh operation. It is conceded at

page 5 of the Office Action, that Nonaka fails to disclose a first power source supplying power to a sensor unit, a second power source, a control circuit controlling the second power source so as to start supply of power by the second power source after the first power supply starts to supply power to the sensor unit. Nonaka is also not seen to disclose or to suggest a first power source that supplies power to the sensor unit through at least the signal line adapted to read out an electrical signal.

Aoki is not seen to remedy the deficiencies of Nonaka. Aoki is seen to describe a control circuit that controls power supply to either a picture signal processing circuit or a compression processing circuit. (See Aoki, Abstract, col. 2, lines 40 to 50 and elements 18 and 22 of Figure 1.) Thus, Aoki is merely seen to describe supplying power independently for the image signal processing circuit 18 and the compression processing circuit 22.

Neither Nonaka nor Aoki is seen to disclose the features of: 1) a control circuit controlling a second power source to start supply of electrical power to the preamplifier after the first power source starts to supply electrical power to the sensor unit, and 2) the first power source supplies power to the sensor unit through at least the signal line.

Hanma is not seen to remedy the deficiencies of Nonaka and Aoki. More particularly, Hanma is seen to describe an electronic still camera with a power source 7 which supplies power to each of the component blocks of the camera. Hanma is not seen to disclose the features of: 1) a control circuit controlling a second power source to start supply of electrical power to the preamplifier after the first power source starts to supply

electrical power to the sensor unit, and 2) the first power source supplies power to the sensor unit through at least the signal line.

Finally, Shimizu is seen to describe a control circuit 12 which controls output amplifier power source circuit 68 to reduce power supplied to output amplifier 62 while CCD 6 is exposed to light, and once a predetermined exposure time has passed, control circuit 12 causes output amplifier power source circuit 68 to increase power to the output amplifier 62. (See col. 5, lines 14 to 44 and col. 6, lines 5 to 47 and Figure 5 of Shimizu) Thus, Shimizu is seen to describe reducing the power supplied to amplifier 62 for a predetermined period of time, and to supply an increased amount of power- to amplifier 62 after the expiration of the predetermined period of time.

Shimizu is not seen to disclose the features of: 1) a control circuit controlling a second power source to start supply of electrical power to the preamplifier after the first power source starts to supply electrical power to the sensor unit, and 2) the first power source supplies power to the sensor unit through at least the signal line.

Therefore, for at least the foregoing reasons, Claim 1 is believed to be in condition for allowance.

The remaining claims are each dependent from Claim 1 and are therefore believed patentable for the same reasons. Because each dependent claim is also deemed to define an additional aspect of the invention, however, the individual consideration of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, the entire application is believed to be in condition for allowance, and such action is respectfully requested at the

Examiner's earliest convenience.

Applicants' undersigned attorney may be reached in our Costa Mesa, California office by telephone at (714) 540-8700. All correspondence should be directed to our address given below.

Respectfully submitted,


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